



we build smart enterprise portals

SMW+ Tutorial

Michael Erdmann

DIQA Projektmanagement GmbH

24 October 2012

SMWCon Fall 2012

Köln, Germany



Agenda

- Overview of SMW+
- **Hands-on Session 1**
 - Basic Authoring
 - Basic Tagging
- Introduction to Ontologies
 - Modelling an Ontology with SMW+
- **Hands-on Session 2**
 - Instantiating the Ontology

Prerequisites

- A Laptop
- A Browser
 - Chrome
 - Firefox
 - IE 8
- The Wiki that we'll use:
 - <http://diqa-pm.servehttp.com/smwdemo>
 - Please register while I give the demo

What is SMW+?

- SMW+ is a set of extensions on top of
 - MediaWiki
 - Semantic MediaWiki
- Now maintained by DIQA
- Sponsored by Vulcan Inc.
 - under the Halo Program
- Focusing on
 - Enhancing the accessibility of the semantic features



SMW⁺ in a Nutshell



**SMW⁺ is a Semantic Enterprise Wiki
for agile collaboration on rich text and data**

- **It is a Wiki:**

Platform for web-based collaboration and quick authoring and provision of content.

- **It is a database:**

Users embed data in text that can be retrieved with powerful data query mechanisms.

- **It is a data integration tool:**

Users access data from external databases, web services or the Semantic Web from within the Wiki.

- **It is enterprise-ready:**

Installs in 15 minutes and comes with business-critical features and professional services.

Some SMW+ Features

Editing Countries/EU

More ▾

Created by WikiSysop on 20 October 2011, at 12:20

[Show WikiTextEditor]



The **European Union** (EU) is an economic and political union or confederation of 27 member states which are located primarily in *Europe*. The EU traces its origins from the European Coal and Steel Community (ECSC) and the **European Economic Community** (EEC), formed by six countries in 1958. In the intervening years the EU has grown in size by the accession of new member states, and in power by the addition of policy areas to its remit. The Maastricht Treaty established the European Union under its current name in 1993. The latest amendment to the constitutional basis of the EU, the Treaty of Lisbon, came into force in 2009.



- Countries/hasMember: **P** Countries/Sweden
- Countries/hasMember: **P** Countries/Portugal
- Countries/hasMember: **P** Countries/Ireland
- Countries/hasMember: **P** Countries/Cyprus
- Countries/hasMember: **P** Countries/Greece
- Countries/hasMember: **P** Countries/Lithuania
- Countries/hasMember: **P** Countries/Slovakia
- Countries/validUntil: **P** 9999
- Countries/hasMember: **P** Countries/Italy
- Countries/hasMember: **P** Countries/Spain
- Countries/hasMember: **P** Countries/Estonia
- Countries/hasMember: **P** Countries/Denmark
- Countries/hasMember: **P** Countries/Belgium

body ul li

- Built-in WYSIWYG Editor
 - Rich text, incl.
 - Tables
 - Images
 - Templates

Some SMW+ Features

Faceted Search

- Supports full-text search
- Drill-down
 - arbitrary ...
 - Categories
 - Properties, and
 - Property values

The screenshot displays the SMW+ Semantic Enterprise Wiki interface. At the top, there's a navigation bar with 'My dashboard', 'Articles and data', and 'Get started with SMW+'. A search bar is present with the text 'Search this wiki'. Below the navigation bar, the 'Faceted Search' section is active, showing a list of 'Selected facets' and 'Available facets'. The 'Selected facets' include 'Countries/SelfGover...' and 'Countries/isMembe...', with sub-facets like 'Countries/western E...' and 'Countries/Europe'. The 'Available facets' section lists 'Categories' (no items found) and 'Properties' (including 'Part of bundle', 'Countries/hasNeighbor...', 'Modification date', 'Countries/validUntil', 'Countries/validSince', 'Countries/hasName', 'Countries/hasCurren...', 'Countries/hasMinLo...', 'Countries/hasMinLa...', and 'Countries/hasMaxLo...'). The search results for 'Countries/Austria' are displayed, showing a table of properties and values. The table includes columns for 'Countries/validUntil', 'Part of bundle', 'Countries/hasMaxLongitude', 'Countries/validSince', 'Countries/hasCurrencyName', 'Countries/hasMinLongitude', 'Countries/hasNeighbor', 'Countries/hasMinLatitude', 'Countries/hasName', 'Countries/isMemberOfRegion', 'Countries/hasMaxLatitude', 'Countries/hasCurrencyCode', and 'Modification date'. The results show that Austria is a member of the EU, has a currency of euro, and is located in Central Europe. The last change was on 2011-10-20 at 12:20:54Z.

SMW+ Semantic Enterprise Wiki

Create New Article

Search this wiki

Go

Change view | WikiSysop

My dashboard | Articles and data | Get started with SMW+ | Admin

Last visited: UserLogin | Main Page | Import | Search

Faceted Search

More

Selected facets

- Countries/SelfGover... ✕
- Countries/isMembe... ✕
 - Countries/western E... ✕
 - Countries/Europe ✕
 - Countries/EU (6)

Remove all facets

Available facets

Categories

no items found in current selection

Properties

- Part of bundle (9)
- Countries/hasNeighbor... (9)
 - Countries/Germany (6)
 - Countries/France (5)
 - Countries/Switzerland (4)
 - Countries/Belgium (4)
 - Countries/Luxembourg... (3)
 - Countries/Italy (3)
 - Countries/Austria (3)
 - Countries/Netherlan... (2)
 - Countries/Liechtenst... (2)
 - Countries/Czech Re... (2)

more

- Modification date (9)
- Countries/validUntil (9)
- Countries/validSince (9)
- Countries/hasName (9)
- Countries/hasCurren... (9)
- Countries/hasMinLo... (8)
- Countries/hasMinLa... (8)
- Countries/hasMaxLo... (8)

more

All namespaces

Main Template Property Category User File MediaWiki

Find Sort by Title ascending

Results 1 to 9 of 9

Countries/Austria

... *Part of bundle: [[Part of bundle::Ruleknowledge_sandbox]]

*Countries/isMemberOfRegion: [[Countries/isMemberOfRegion::Countries/EU]]

*Countries/hasName: [[Countries/hasName::Austria]] *Countries/hasMinLongitude: [[Countries/hasMinLongitude::9.54...]]

is in category: Countries/SelfGovernedCountry

(Hide properties)

Countries/validUntil:	9999
Part of bundle:	Ruleknowledge_sandbox
Countries/hasMaxLongitude:	17.16
Countries/validSince:	1985
Countries/hasCurrencyName:	euro
Countries/hasMinLongitude:	9.54
Countries/hasNeighbor:	Countries/Slovenia, Countries/Switzerland, Countries/Hungary, Countries/Italy, Countries/Germany, Countries/Czech Republic, Countries/Liechtenstein, Countries/Slovakia
Countries/hasMinLatitude:	46.38
Countries/hasName:	Austria
Countries/isMemberOfRegion:	Countries/EU, Countries/western Europe, Countries/Europe
Countries/hasMaxLatitude:	49.02
Countries/hasCurrencyCode:	€
Modification date:	2011-10-20T12:20:54Z

Last change: 2011-10-20 12:20

Countries/Belgium

...: [[Countries/hasMaxLatitude::51.5]] *Countries/hasName: [[Countries/hasName::Belgium]]

*Countries/hasNeighbor: [[Countries/hasNeighbor::Countries/Netherlands_the]]

*Countries/hasCurrencyName: [[Countries/hasCurrencyName::euro]]

*Countries/isMemberOfRegion: ...

is in category: Countries/SelfGovernedCountry

DIQA SMART PORTALS

Some SMW+ Features

DataExplorer / OntologyBrowser

The screenshot displays the DataExplorer / OntologyBrowser interface with three main panels:

- Category Tree:** Shows a hierarchical structure of categories. The 'Countries/SelfGovernedCountry' category is selected. Other categories include 'Countries/CountriesAndRegions', 'Countries/Country', 'Countries/SubordinateCountry', 'Countries/Region', 'Countries/GeoRegion', 'Countries/TradeRegion', and 'Person'. A 'Filter' button is at the bottom.
- Instances:** Lists instances of the selected category. 'Countries/Australia' is highlighted. Other instances include 'Countries/Afghanistan', 'Countries/Albania', 'Countries/Algeria', 'Countries/Andorra', 'Countries/Angola', 'Countries/Antigua and Barbuda', 'Countries/Argentina', 'Countries/Armenia', 'Countries/Austria', 'Countries/Azerbaijan', 'Countries/Bahamas the', 'Countries/Bahrain', 'Countries/Bangladesh', 'Countries/Barbados', 'Countries/Belarus', 'Countries/Belgium', 'Countries/Belize', 'Countries/Benin', and 'Countries/Bhutan'. A 'Filter' button is at the bottom.
- Properties:** Shows properties for the selected instance. The 'Countries/hasCurre...' property is selected, showing values like '\$A' and 'Australian dollar'. Other properties include 'Countries/hasMaxLa...', 'Countries/hasMaxLo...', 'Countries/hasMinLa...', 'Countries/hasMinLo...', 'Countries/hasName', 'Countries/isMember...', 'Countries/isMember...', 'Countries/isMember...', and 'Countries/validSin...'. A 'Filter' button is at the bottom.

Some SMW+ Features

Query Interface

[Create query](#) [Load query](#)

Main Query : Add property [Add Category](#) [Add Property](#) [Add Instance](#)

Property:
Type: Number

Property value: ☒ Show in results
Column label:
☐ Value must be set

Restriction: ☒ None ☐ Specific value ☐ Subquery

[Add](#) [Cancel](#)

Query Outline [Query Code](#)

Main Query
☒ Countries/SelfGovernedCountry
☒ Countries/validUntil
 < 1995

[+ Query Options](#)

[- Result Preview](#) | [Show full result](#)

	<input checked="" type="checkbox"/> validUntil
Countries/Czechslovakia	1,993
Countries/Democratic Yemen	1,990
Countries/Ethiopia 1993	1,993
Countries/Federal Republic of Germany the	1,990
Countries/German Democratic Republic the	1,990
Countries/Socialist Federal Republic of Yugoslavia the	1,992

Now it's your turn! -- Session 1

- Basic Authoring
 - Create a wiki page
 - Formulate text and layout with WYSIWYG editor
 - Add images
- Basic Semantics
 - Tag properties and categories with WYSIWYG editor and Semantic Toolbar
- Query and visualize this data

- Create a page representing your self
 - Start with a plain WYSIWIG page
 - Enter some texts, possibly an image, and play with the editor
- Create a page representing a Task, e.g.
 - Start with a plain WYSIWIG page

Task: Update Screenshots

Description: During the next phase, it is necessary to update the screenshots in the internal documentation.

Assignee: YOU

Start: April 25, 2012

Deadline: December 31, 2012

This task is part of The famous Test project.

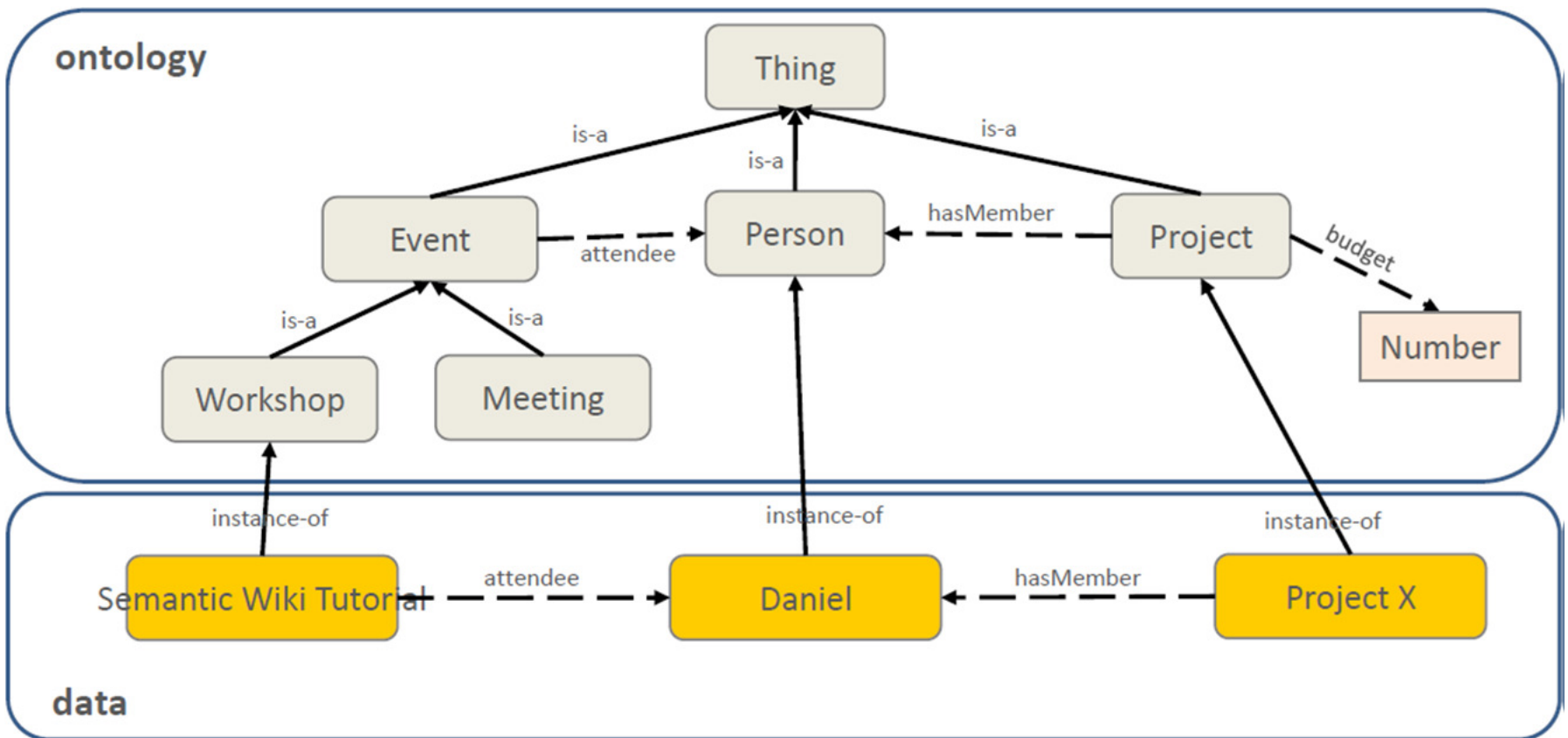
- Create a query to find all task assigned to Fred and show their description, start and end date
- Embed a similar query for all your tasks on the page you created earlier.
- Use Faceted Search to find your pages.

Agenda

- Overview of SMW+
- **Hands-on Session 1**
 - Basic Authoring
 - Basic Tagging
- Introduction to Ontologies
- Modelling an Ontology with SMW+
- **Hands-on Session 2**
 - Instantiating the Ontology

What is an ontology?

“An ontology is a formal, explicit specification of a shared conceptualization.”



Constituents of an Ontology

Ontology entities and their counterpart in the wiki

- Category: Wiki page in namespace „Category“
- Instance: Any wiki page in the main namespace
- Property: Wiki page in namespace „Property“

Event

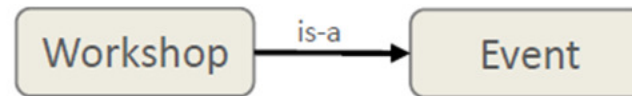
Semantic Wiki Tutorial

— attendee —→

Ontology statements in Semantic MediaWiki

- Is-a: Sub-category relation. Category page tagged with a category.

- [[Category:Event]]



- Instance-of: Category assertion. Wiki page tagged with a category.

- [[Category:Person]]



- Relating instances: Property on a page pointing to another page.

- [[Attendee::Daniel]]



- Attributes for instances: Property on a page with a data value.

- [[Budget::300000]]



Ontological Properties of Properties

- All characteristics are specified as annotations on property pages:
 - **Type** -- defines the “data type” of the property (cf. next page)
 - **Domain** -- articles of this category can have values for this property.
 - **Range** -- articles of this category can be objects of this property. Only relevant, if the property is of type is **Page**.
 - **Allowed values** -- Defines a set of values which are allowed for this property.
 - **Minimal/Maximum cardinality** -- The minimal/maximal number of values an article can have for this property.
- All this is good for autocompletion, proposing values, and checking validity.

Datatypes in Semantic MediaWiki

Page	Datatype	Description
Type Annotation URI	Annotation URI	Holds URIs, but has some technical differences during export compared to the "URL" type
Type Boolean	Boolean	Holds boolean (true/false) values
Type Code	Code	Holds technical, pre-formatted texts (similar to type Text)
Type Date	Date	Holds particular points in time
Type Email	Email	Holds e-mail addresses (similar to type String)
Type Geographic coordinate	Geographic coordinate	Holds coordinates describing geographic locations
Type Number	Number	Holds integer and decimal numbers, with an optional exponent
Type Page	Page	Holds names of wiki pages, and displays them as a link
Type Quantity	Quantity	Holds values that describe quantities, containing both a number and a unit
Type Record	Record	Allows saving compound property values that consist of a short list of values with fixed type and order
Type String	String	Holds character sequences up to 255 characters
Type Telephone number	Telephone number	Holds international telephone numbers based on the RFC 3966 standard
Type Temperature	Temperature	Holds temperature values (similar to type Quantity)
Type Text	Text	Holds text of arbitrary length
Type URL	URL	Holds URIs, URNs and URLs (similar to type String)

http://semantic-mediawiki.org/wiki/Help:Properties_and_types#List_of_datatypes

It's your turn, again! -- Session 2

- Let's build an ontology, together
 - On the white board
 - Concurrency is difficult
 - Consensus is important
 - Formalize the ontology with the **DataExplorer**
- Populate the ontology with **AutomaticSemanticForms (ASF)**
- Query and visualize data with the **QueryInterface**

- 1. Create an instance of one of the just created categories
 - Start with the “Create New Article” dialog
 - Select the category from the drop-down list
- 2. Enter some data in the form and some text in the text-box
- 3. Formulate some queries with the QueryInterface to see what everyone else has entered.

Wrap Up

Today we have learned ...

- ... how to create articles and fill them with text, images, tables and semantic data
... with **WYSIWYG** editor, **DataToolbar**, **AutomaticSemanticForms**
- ... how to model an ontology
... with the **DataExplorer**
- ... how to retrieve the data entered collaboratively
... with the **QueryInterface** and **FacetedSearch**

The Community Portal for SMW+ (<http://smwplus.net>)

The screenshot shows the SMW+ Semantic Enterprise Wiki community portal. The browser address bar displays www.smwplus.net/index.php/Semantic_MediaWiki_Plus. The page features a dark header with the SMW+ logo, a search bar, and navigation links. The main content area is divided into three columns: Product, User Manuals, and Resources. The Product column highlights the SMW+ Product, describing its adaptability to any domain and its features. The User Manuals column lists links to SMW+, Halo extension, WYSIWYG extension, and a Help center. The Resources column includes links to a FAQ, a Library of examples, Video tutorials, and More resources. The Support column provides links to a Discussion forum, Ask the developers, a Mailinglist, and a Support plan. A blue button labeled 'Find out more' is positioned below the Product column. At the bottom, two sections are visible: 'Discover SMW+' with a link to 'Take a product tour of SMW+' and 'Get support' with links to 'Get professional support, training or consulting' and 'Share your experiences and ideas in the forum'.

Semantic MediaWiki Plus - x

www.smwplus.net/index.php/Semantic_MediaWiki_Plus

Change view | Log in / create account

SMW+
Semantic Enterprise Wiki

Search this wiki Search

Search with Google

Products Business Support Community

Product

SMW+ Product

SMW+ adapts to any domain, the Enterprise Wiki where text and data - in any business - Author and share with

- Create your own domain
- Tag data in articles
- Query for the data

Find out more

USER MANUALS

SMW+
Learn how to use and administer SMW+.

Halo extension
Learn how to use and administer the Halo extension.

WYSIWYG extension
Learn how to use and administer the WYSIWYG extension.

Help center
Find all manuals at a glance.

RESOURCES

FAQ
Find your solution in the collection of frequently asked questions.

Library of examples
Find ready-to-go examples for ask-queries, templates, web services and other stuff.

Video tutorials
Explore how to effectively use SMW+, Semantic Forms and other extensions to SMW.

More resources
Read publications related to SMW+.

SUPPORT

Discussion forum
Use the forum to get support from other SMW+ users.

Ask the developers
Discuss technical issues with the developers.

Mailinglist
Subscribe to the mailinglist to keep up-to-date and stay in contact with the SMW community.

Support plan
Get extended professional support for your SMW+ installation.

SMW+ is a semantic enterprise wiki that lets you create and share knowledge with your team.

Discover SMW+

Take a product tour of SMW+

Get support

Get professional support, training or consulting

Share your experiences and ideas in the forum

Thank you for your attention!



erdmann@diqa-pm.com
+49 721 609 517 24

▶ **www.diqa-pm.com**

▶ **www.smwplus.net**

DIQA Projektmanagement GmbH

Pfinztalstr. 90
76227 Karlsruhe
Germany

Handelsregister: Amtsgericht

Mannheim HRB 715454

USt-IdNr: DE283037270

Geschäftsführer: Dr. Michael Erdmann,
Dipl.-Wirtsch.-Inf. Daniel Hansch